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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/018,518

Applicant(s)

ZHOU ET AL.

Examiner

Cindy Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35, 36 is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This is response to amendment filed 08/20/07.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11-15, 22-26, 31 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Spider's Apprentice" written by Linda Barlow, <http://web.archive.org/web/20000815211428/http://www.monash.com/spidap4.html> (hereafter Linda) in view of Li (US 20020059161).

Regarding claims 1 and 22, Linda discloses: A method and a machine-readable storage medium that provides instructions comprising:

receiving a search term for a query (i.e., in section keyword searching, page 1, 1st paragraph, Linda);

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searching a network of concept terms for terms related to the search term from a plurality of relevant web pages residing on websites located on servers coupled to (i.e., a concept based search returns hits on documents that are about the subject/theme you're exploring, even if the words in the document don't precisely match the words you enter into the query, section concept-based searching, page 2, 1st paragraph, Linda), wherein the network of concept terms is associated with a subject matter domain having a plurality of predetermined relevant terms (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hilts on the subject of romance, section Concept-based search, page 2, Linda),

However, Linda didn't disclose: wherein each relevant web page includes at least one of the plurality of predetermined relevant terms, and wherein each related term and the search term appear together in at least one sentence in one of the plurality of relevant web page. On the other hand, Li discloses: wherein each relevant web page includes at least one of the plurality of predetermined relevant terms, and wherein each related term and the search term appear together in at least one sentence in one of the plurality of relevant web page (i.e., syntactic relationships in IR are determined from the document collection itself, in particular, word co-occurrence information can be used to relate two words syntactically... given a user query, the query word list is expanded to include words that are both semantically similar as well

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as syntactically related, see paragraph 0038, lines 13-22, Li). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the steps wherein each relevant web page includes at least one of the plurality of predetermined relevant terms, and wherein each related term and the search term appear together in at least one sentence in one of the plurality of relevant web page in the system of Linda as taught by Li. The motivation being to provide a solution to the problem of word mismatch and using semantically similar and syntactically related words to those specified by the user in the query to reduce the chances of missing relevant documents see paragraph 0020, Li.

Linda/Li discloses: reformulating the query using the search term and the related terms, before performing a search for documents based on the search term(i.e., search refining options differ from one search engine to another, but some of the possibilities include the ability to search on more than one word, to give more weight to one search term than you give to another, and to exclude words that might be likely to muddy the results, you might also be able to search on proper names, on phrases, and on words that are found within a certain proximity to other search terms, section Refining your search, page 3, 2nd paragraph, Linda);

searching a local database for data terms that match the search term and the related terms, wherein the data terms are generated based on occurrence frequencies within a documents residing on the websites (i.e., some search engines consider both the frequency and the positioning of keywords to determine relevancy, reasoning that if

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the keywords appear early in the document, or in the headers, ...it also takes into consideration whether the documents that emerge as hits are frequently linked to other documents on the web, reasoning that if other folks consider them important, section Relevancy rankings, 5th paragraph , Linda);

and in response to matching data terms with the search terms and related terms corresponding to the data terms, retrieving the documents from the respective websites (i.e., the documents that emerge as hits are frequently linked to other documents on the web, reasoning that if other folks consider them important, section Relevancy rankings, 5th paragraph , Linda).

Regarding claims 2 and 23, all the limitations of these claims have been noted in the rejection of claims 1 and 22 above, respectively. In addition, Linda disclose: displaying the retrieved documents, the search terms and the related terms, wherein at least one of the related terms includes a link, when activated, a further search of concept terms is conducted and one or more further related terms are presented, and wherein searching the local database and retrieving the documents are iteratively performed based on the further related terms (i.e., for example, Lycos ranks hits according to how many times your keywords appear in their indices of the document and in which fields they appear... hits are frequently linked to other documents on the web, section Relevancy rankings, 5th paragraph, Linda).

Regarding claims 3 and 24, all the limitations of these claims have been noted in the rejection of claims 1 and 22 above, respectively. In addition, Linda discloses: further comprising generating a summary of the documents for the searched terms that match

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the search term and the related terms (i.e., most of the search engines returns results with confidence or relevancy rankings, in other words, they list the hits according to how closely they think the results match the query, page 4, section Relevancy Rankings, 1st paragraph, Linda).

Regarding claim 4, all the limitations of this claim have been noted in the rejection of claim 3. In addition, Linda discloses: wherein the summary includes the searched terms and a beginning portion of the documents (i.e., for example, Lycos ranks hits according to how many times your keywords appear in their indices of the document and in which fields they appear (i.e., in headers, titles or text), page 4, section Relevancy Rankings, 5th paragraph, Linda).

Regarding claim 5, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda discloses: wherein the network is the Internet (page 3, section Refining your search, 3rd paragraph, Linda).

Regarding claims 6 and 25, all the limitations of these claims have been noted in the rejection of claims 1 and 22 above, respectively. In addition, Linda discloses: wherein the network of concept terms includes links between related terms, wherein the links are based on semantic relationship (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with other words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda).

Regarding claims 7 and 26 , all the limitations of these claims have been noted in the rejection of claims 6 and 25 above, respectively. In addition, Linda discloses: wherein the semantic relationships are selected from a group consisting of canonical (logical form), synonym, hyponym, hyponym, part (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda).

Regarding claim 8, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda discloses: wherein related terms are more specific than the search term (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda);

Regarding claim 9, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda discloses: wherein the occurrence frequencies include mutuality between words within the document (i.e., some search engines

consider both the frequency and the positioning of keywords to determine relevancy, reasoning that if the keywords appear early in the document, or in the headers, ...it also takes into consideration whether the documents that emerge as hits are frequently linked to other documents on the web, reasoning that if other folks consider them important, section Relevancy rankings, 5th paragraph , Linda).

Regarding claim 11, all the limitations of these claims have been noted in the rejection of claim 10 above, respectively. In addition, Linda disclose: wherein receiving the search term for the query includes receiving the search term for the query based on the displaying of the search term and the related items in a prior process (i.e., search refining options differ from one search engine to another, but some of the possibilities include the ability to search on more than one word, to give more weight to one search term than you give to another, and to exclude words that might be likely to muddy the results, you might also be able to search on proper names, on phrases, and on words that are found within a certain proximity to other search terms, section Refining your search, page 3, 2nd paragraph, Linda).

. Regarding claim 13, all the limitations of these claims have been noted in the rejection of claim 10 above, respectively. In addition, Linda discloses: wherein reformulating the new query includes combining the new search term and the new related terms together using search operators (section Refining your search, page 3, 5th –10th paragraphs, Linda).

Regarding claim 14, all the limitations of this claim have been noted in the rejection of claim 13. In addition, Linda discloses: wherein the search operators are selected from the group consisting of AND, OR, NOT and NEAR, wherein the NEAR operator is satisfied when the new search term and at least one of the new related terms occur within a predetermine number of words within a sentence of a document (section Refining your search, page 3, 5th –10th paragraphs, Linda).

Regarding claim 31, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda discloses: wherein the related terms are different than the search term and have similar meaning to the search term (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda)..

Regarding claim 32, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda discloses: wherein the search tem includes a name of an organization, and wherein the related terms include at least one of a name of subsidiaries of the organization, a product name of the organization, and a stock symbol of the organization (i.e., in this example, the phrase" the company's" is an anaphoric reference back to IBM, col. 18, lines 54-67, Liddy).

Regarding claim 33, all the limitations of this claim have been noted in the rejection of claim 1 above. In addition, Linda discloses: wherein the data terms are generated based on mutual information associated with the search term and the related terms using a predetermined algorithm (i.e., some search engines consider both the frequency and the positioning of keywords to determine relevancy, reasoning that if the keywords appear early in the document, or in the headers, ...it also takes into consideration whether the documents that emerge as hits are frequently linked to other documents on the web, reasoning that if other folks consider them important, section Relevancy rankings, 5th paragraph , Linda).

Regarding claim 34, all the limitations of this claim have been noted in the rejection of claim 1 above. In addition, Linda discloses: wherein the mutual information is determined based on one or more weight factors of the search term and the related terms, the one or more weight factors representing occurrence frequencies of the respective search term, related terms and a combination of both search term and the related terms (i.e., some search engines consider both the frequency and the positioning of keywords to determine relevancy, reasoning that if the keywords appear early in the document, or in the headers, ...it also takes into consideration whether the documents that emerge as hits are frequently linked to other documents on the web, reasoning that if other folks consider them important, section Relevancy rankings, 5th paragraph , Linda).

Claims 10, 12 15-21, 27-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over "The Spider's Apprentice" written by Linda Barlow,
<http://web.archive.org/web/20000815211428/http://www.monash.com/spidap4.html> (hereafter

Linda) in view of Li (US 20020059161) and further in view of Liddy et al. (US 6026388, hereafter Liddy).

Regarding claims 10, 15 and 27 all the limitations of these claims have been noted in the rejection of claims 1 and 2. It is therefore rejected as set forth above. However, Linda/Li didn't disclose: recursively performing the following until desired documents are found . On the other hand, Liddy discloses: recursively performing the following until desired documents are found (i.e., system reformulate a new query representation based on the subject contents of the marked documents along with the original query. With the revised query the user may be asked to confirm the query representation, as was the case with the original query, dependent on user selected preference settings..., col. 35, lines 26-40, Liddy). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the steps for recursively searching in the system of Linda/Li as taught by Liddy. The motivation being to enable the search system to reformulate a new query representation based on the subject contents of the marked documents, along with the original query, retrieved all documents that relevant to the revised query (col. 35, lines 26-40, Liddy).

Regarding claims 12, and 16, all the limitations of these claims have been noted in the rejection of claims 10 and 15 above, respectively. In addition, Linda discloses: wherein the new search term is a related term from a prior search of the network of

concept terms (i.e., search refining options differ from one search engine to another, but some of the possibilities include the ability to search on more than one word, to give more weight to one search term than you give to another, and to exclude words that might be likely to muddy the results, you might also be able to search on proper names, on phrases, and on words that are found within a certain proximity to other search terms, section Refining your search, page 3, 2nd paragraph, Linda).

Regarding claim 17, all the limitations of this claim have been noted in the rejection of claims 15 and 13 above. It is therefore rejected as set forth above.

Regarding claim 18, all the limitations of this claim have been noted in the rejection of claims 17 and 14 above. It is therefore rejected as set forth above.

Regarding claim 19, all the limitations of these claims have been noted in the rejection of claim 1 above. However, Linda/Li is silence to disclose: database that includes data terms (i.e., proper noun expansion database, wherein the data terms are from documents residing on websites located on servers across a network . On the other hand, Liddy discloses: an apparatus comprising: a database that includes data terms (i.e., proper noun expansion database (col. 18, lines 7-12 , Liddy), wherein the data terms are generated (i.e., to generate these synonyms, a CN database having a list of CN synonyms, col. 18, lines 36-47) from documents residing on websites located on servers across a network (col. 6, lines 46-49; and col. 18, lines Liddy). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include a database that includes data terms, wherein the data terms are

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generated from documents residing on websites located on servers across a network in the system of Linda as taught by Liddy. The motivation being to enable the search system have an expansion database, helpful for refined the search term include the ability to search on more than one word, to give more weight to one search term.

In addition, Linda discloses: a concept network that: includes search terms and related terms that are linked together based on semantic relationships (i.e., for example, Lycos ranks hits according to how many times your keywords appear in their indices of the document and in which fields they appear... hits are frequently linked to other documents on the web, section Relevancy rankings, 5th paragraph, Linda), the search terms and the related terms to locate portions of the documents based on a match between the searchable term, and the related terms and the data terms stored in the database (i.e., most of the search engines returns results with confidence or relevancy rankings, in other words, they list the hits according to how closely they think the results match the query, page 4, section Relevancy Rankings, 1st paragraph, Linda)

Displaying the retrieved documents, the search terms and the related terms (i.e., for example, Lycos ranks hits according to how many times your keywords appear in their indices of the document and in which fields they appear... hits are frequently linked to other documents on the web, section Relevancy rankings, 5th paragraph, Linda)..

Regarding claim 20, all the limitations of these claims have been noted in the rejection of claim 19 above, respectively. In addition, Linda discloses: wherein the semantic

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relationships are selected from a group consisting of canonical (logical form), synonym, hyponym, hyponym, part (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda).

Regarding claim 21, all the limitations of this claim have been noted in the rejection of claim 19. In addition, Linda discloses: wherein related terms are more specific than the search term (i.e., for example, the word heart, when used in the medical/health context, would be likely to appear with such words as coronary, artery, lung, stroke, cholesterol, pump, blood, attack, and arteriosclerosis. If the word heart appears in a document with others words such as flowers, candy, love, passion, and valentine, a very different context is established, and the search engine returns hits on the subject of romance, page 2, section Concept-based search, , 5th paragraph Linda).

Regarding claim 28, all the limitations of these claims have been noted in the rejection of claim 27 above, respectively. In addition, Linda disclose: wherein receiving the search term for the query includes receiving the search term for the query based on the displaying of the search term and the related items in a prior process (i.e., search refining options differ from one search engine to another, but some of the possibilities

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include the ability to search on more than one word, to give more weight to one search term than you give to another, and to exclude words that might be likely to muddy the results, you might also be able to search on proper names, on phrases, and on words that are found within a certain proximity to other search terms, section Refining your search, page 3, 2nd paragraph, Linda).

Regarding claim 29, all the limitations of these claims have been noted in the rejection of claim 27 above, respectively. In addition, Linda discloses: wherein the new search term is a related term from a prior search of the network of concept terms (i.e., search refining options differ from one search engine to another, but some of the possibilities include the ability to search on more than one word, to give more weight to one search term than you give to another, and to exclude words that might be likely to muddy the results, you might also be able to search on proper names, on phrases, and on words that are found within a certain proximity to other search terms, section Refining your search, page 3, 2nd paragraph, Linda).

Regarding claim 30, all the limitations of these claims have been noted in the rejection of claim 27 above, respectively. In addition, Linda discloses: wherein reformulating the new query includes combining the new search term and the new related terms together using search operators (section Refining your search, page 3, 5th –10th paragraphs, Linda).

Regarding claim 32, all the limitations of this claim have been noted in the rejection of claim 1. In addition, Linda/Li/Liddly discloses: wherein the search term

includes a name of an organization, and wherein the related terms include at least one of a name of subsidiaries of the organization, a product name of the organization, and a stock symbol of the organization (i.e., in this example, the phrase "the company's" is an anaphoric reference back to IBM, col. 18, lines 54-67, Liddy). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include wherein the search term includes a name of an organization, and wherein the related terms include at least one of a name of subsidiaries of the organization, a product name of the organization, and a stock symbol of the organization in the system of Linda/Li as taught by Liddy. The motivation being to enable the search system have an expansion database, helpful for refined the search term include the ability to search on more than one word, to give more weight to one search term.

Allowable Subject Matter

Claims 35 and 36 are allowed in light of the applicant arguments and in light of the prior art made of record.

The following is an examiner's statement of reasons for allowance: the prior art of record fails to disclose or suggest wherein the mutual information (MI) of the first term x and the second terms y is determined by $M1(x, y) = f(x, y) / f(x) + f(y) - f(x, y)$, wherein $f(x, y)$ corresponds to an occurrence frequency of both search term and the related terms, wherein $f(x)$ corresponds to an occurrence frequency of both the first term and the second term,

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wherein f(y) corresponds to an occurrence frequency of the second terms as recited in claims 35 and 36.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

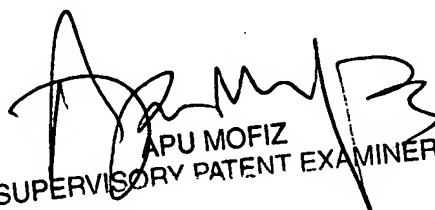
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 571-272-4025. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cindy Nguyen



APU MOFIZ
SUPERVISORY PATENT EXAMINER